

IN THE SPECIFICATION:

At page 1, please add the following new paragraph after the title:

CROSS-REFERENCE TO RELATED APPLICATION

This application is the U.S. National Stage of International Application Number PCT/IB2002/005461 filed December 18, 2002 and published in English July 1, 2004 under International Publication Number WO 2004/056038 A1.

At page 1, please amend the paragraph beginning on line 9 through line 31 as follows:

At present, there is an increasing interest to be able to use mobile devices, or wireless terminals, as access devices for web browsing, intranet access, access to personal electronic mailbox accounts, as well as to other services supporting such mobile access. Lately, many services supporting such access by wireless terminals have been implemented so as to base [its] communication on the Wireless Application Protocol (WAP), so called WAP services.

Before granting a wireless terminal access to a service it is most often desired, not to say required in case the service is a corporate intranet or a personal electronic mailbox account, to perform some kind of authentication of the wireless terminal or wireless terminal user. A problem in connection with this is that the server hosting the service ~~need~~needs some user specific, or terminal specific, information on which the authentication can be based. This is particularly a problem in connection with WAP (Wireless Application Protocol) services in those cases the MISISDN (Mobile Station Integrated Services Digital Network) number of the wireless terminal is not transferred to the server hosting the WAP service during access of the service.

At page 2, please amend the paragraph beginning on line 26 as follows:

According to the present invention, a method ~~according to independent claim 1~~ and a system ~~according to independent claim 13~~ are provided to carry out the above authentication. ~~Preferred embodiments are defined in the dependent claims.~~

At page 4, please amend the paragraphs beginning on line 10 through page 5, line 5 as follows:

The server 120 ~~administrates~~administers a service to which access is desired by the wireless terminal. This service is either implemented and executed on the server 120 itself or any another server (not shown) with which the server 120 communicates over the packet switched network 130. The packet switched network 130 can be the Internet, a corporate intranet or any other packet switched network. The server 120 includes first server means 125 for communication over the first communication path 140, second server means for communication over the second communication path 150, as well as means for authenticating a connecting wireless terminal. Furthermore, the server 120 may support content conversion between protocols used by the wireless terminal and any other server on the packet switched network.

The wireless terminal 100 is adapted to communicate with the server 120 over the first communication path 140 as well as over the second communication path 150.

An exemplifying mode of operation of the embodiment in Fig. 1 is as follows. When the user of the wireless terminal 100 wishes to access a service ~~administrated~~administered by the server 120, he first initiated the transmission of a first set of user identification parameters over the first communication path 140 to the first server means 125. The user then accesses the second server means 126 over the second communication path and transmits a second set of user identification parameters to the server. If the server 120 authenticates the terminal successfully based on a comparison of the two received sets of user identification parameters, the

wireless terminal 100 will be granted access to the service ~~administrated~~administered by the server 120.

At page 6, please amend the paragraphs beginning on line 4 through page 8, line 2 as follows:

The first communication path for transmitting the first set of parameters to the server 220 is a communication path provided via an SMS-C (Short Message Service ~~Centre~~Center) 240. The second communication path for transmitting the second set of parameters to the server 220 is a communication path provided by a WAP (Wireless Application Protocol) session between the wireless terminal 200 and the server 220 via a WAP gateway 250. By means of the first communication path, the wireless terminal is able to initiate a transmission of an SMS message to the server 220 ~~administrating~~administering the service to which access is desired. By means of the second communication path, the wireless terminal is able to initiate a WAP session over the WAP gateway 250 with the server 220 ~~administrating~~administering the service.

The wireless terminal initiates the transmission of the first set of parameters by requesting the SMS-C to transmit an SMS message to the server, in which server the SMS message is received by an SMS gateway. The SMS gateway then derives the first set of parameters based on the MSISDN of the terminal that initiated the SMS message, which MSISDN will be included in the originating address field of the received SMS message. The parameters, such as a user identification parameter in the form of a user name, or, alternatively the MSISDN number, and an associated password, will be forwarded from the SMS gateway to the service ~~administrated~~administered by the server in order for the service to later base authentication of the terminal user on these parameters.

The wireless terminal transmits the second set of parameters, which second set includes the same parameters as the first set, over an established WAP session via the WAP gateway. As is understood, depending on the technology used, this session could alternatively be established via a combined WAP gateway/server within the server ~~administrating~~administering the service.

As stated, the server 220 ~~administrate~~administers a service to which access is desired by the wireless terminal 200. The server 220 includes an SMS gateway 225 for communicating with the wireless terminal over the SMS-C 240, WAP session means 226 for communicating with the wireless terminal over a WAP session, as well as means for authenticating a connecting wireless terminal. The SMS gateway 225 is operative to transfer information, derived from and/or received in, an SMS message to the WAP session means 226. The WAP session means 226 has a design and operation corresponding to that of a WAP server and is thus capable of performing services on behalf of a connecting wireless terminal. It may thus also be capable of performing content conversions, for example from/to WML to/from HTML (HyperText Markup Language) or any other markup language which may be used by any other server on the Internet or intranet with which the WAP session means is to communicate in order to ~~administrate~~administer the desired service. Such conversion also includes converting to/from the information format used by any database which is needed to be accessed for ~~administrating~~administering the desired service.

Thus, this embodiment comprising a WAP session for the second communication path will be advantageous in a situation where the wireless terminal's MSISDN number is not received by the server when a WAP session is established between the two. In such a situation, the server ~~administrating~~administering a service for which authentication is needed, will have no user or terminal information on which to base the authentication. However, by transferring such user or terminal information over the first communication path beforehand, the server can authenticate the terminal by matching the previously received user or terminal information with that user or terminal information which is transferred by the user to the server over the WAP session.

At page 8, please amend the paragraph beginning on line 8 as follows:

In this embodiment referred to by Fig. 2, the exemplifying service is an electronic mailbox account service ~~administrate~~administered by the server 220.

Thus, the WAP session means 226 communicates with a second server implementing an e-mail account server 227.

At page 8, please amend the paragraph beginning on line 16 through page 9, line 2 as follows:

When the user of the wireless terminal 100 wishes to access a service ~~administered~~administered by the server 120, he first initiated the transmission of an SMS message by making a request to the SMS-C 240. The implementation of this can be made in such way that the user simply presses a “w” for WAP session which automatically initiates a request of an SMS message to a pre-stored destination address designating the server 220. Upon reception of the SMS message by the SMS gateway 225 of server 220, the SMS gateway will match the MSISDN in the originating address filed of the SMS message against a table 228 storing user names and passwords corresponding to various MSISDN. The table may also include the time the user sent the SMS message. The database in which table 228 is stored may further include the network address relevant to the user, e.g., in this embodiment, the network address of e-mail account server 227. The SMS gateway then transfers the derived user name, and/or the received MSISDN, and the associated password as the first set of user identification parameters to the WAP session means 226. The SMS gateway also includes a time stamp which indicates the time of reception of the SMS message in the first set of parameters transferred to the WAP session means.

At page 9, please amend the paragraph beginning on line 16 though page 10, line 4 as follows:

Having established a WAP session with the server 220, the user transmits a second set of parameters which includes his user name, and/or MSISDN, and the associated password. For example, the user name or MSISDN may be transmitted automatically by the application in the wireless terminal or by the user selecting a suitable command for ~~the~~that purpose. The user then completes the second set of

parameters by entering his password, preferably in the form of the PIN code normally used when operating the wireless terminal.

The server 220 will upon reception of the second set of parameters compare the received user name and password of the second set with the user name and password forwarded by the SMS gateway. If there is a match, and if the second set of parameters were received within a predefined time limit following the time stamp included in the first set of parameters, the wireless terminal is authenticated by the server and access to the requested service is granted. In this case the user wishes to access his personal e-mail account, which means that the WAP session means 226 will communicate with the e-mail account server 227, using the network address relevant to the user and stored in association with the table 228 in the database as discussed above, to enable the user to access, by reading, deleting, transmitting etc., e-mails ~~of/from~~of/from/to his mailbox.

At page 10, please amend the paragraphs beginning on line 12 through page 11, line 12 as follows:

With reference to Fig.4, yet another exemplifying embodiment of the invention will be described. This embodiment differs from the embodiment of Fig.2 in that the second communication path is implemented via a GMSC (Gateway Mobile Switching ~~Centre~~Center) 450 rather than via a WAP gateway. Also, the second server means of the server for communicating over the second communication path is implemented by voice session means 426 rather than WAP session means. In addition to the SMS gateway and the voice session means, the server 420 includes means for text-to-speech and speech-to-text conversion. The other elements in Fig. 4 correspond to those described in Fig. 2 and have therefore been given the same reference numerals as in Fig. 2.

The operation is similar to that of the embodiment in Fig. 2. The main difference is that the second set of parameters is transmitted by the user of the wireless terminal over a voice session established with the voice session means 426 of the server 420 over the GMSC 450. Preferably, the user of the terminal in this

embodiment initiates the process by simply ~~presses~~pressing a “v” for Voice session, which command automatically initiates a request of an SMS message to a pre-stored destination address designating the server 420. The user then establishes a voice session with the server 420, e.g. by selecting a predefined destination address/number, and provides the server with the second set of parameters for authentication.

By means of the speech-to-text means the server is able to interpret ~~command~~a command from the user when controlling the access to his mailbox account. Correspondingly, the text-to-speech means enables the server 420 to transform information from the mailbox account to speech to which the user may listen. This is obviously an advantageous way of accessing a mailbox account or any other service suitable for the same kind of access, since it, e.g., enables the user of the terminal to, in a safe way, access the service or mailbox while driving a car.